Traffic Data Collection Software Project
Current and Future Collision
Location Coding Methods
Version 1.0

Washington State Department of Transportation

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Disclaimer

The contents of this document are current as of the date shown. Efforts are currently underway to re-design the officer and citizen collision report forms. This may result in some existing data fields being revised, or new data fields being added.

For further information on this subject, contact:
Nadine Jobe
(360) 570-2398
joben@wsdot.wa.gov

WSDOT's Current Collision Location Coding Methods

City Streets: The officer indicates the street name, and if known the street address, on the collision form. There are many opportunities for errors such as numerical transpositions or identifying streets, avenues, ways and boulevards inappropriately. Today, the only option is to enter what the officer has written on the report. Some cities have geocoded their collisions. If WSDOT could get that information in a timely fashion, it would provide more accurate city location coding; however, it may also increase the time it takes to get the collision data sent into WSDOT for processing into the statewide collision database.

County Roads: Currently the county engineers fill out a County Location Coding Form (CLCF) identifying the county road log number and milepost for each collision after they receive a copy of the collision from WSDOT. The CLCF is returned to WSDOT and data entered into the statewide database. The CLCF process requires multiple handling of the county record and WSDOT does not always receive the CLCF back from the counties, causing there to be county collision records in the statewide database without the county road log number and milepost location information.

The WSDOT is currently automating the CLCF process to eliminate the need to send paper copies of the reports and the CLCF forms to the counties. This project is scheduled to be completed July 1, 2005. It will be available for the county engineers to view their county reports and submit the CLCLF information to WSDOT electronically.

State Routes: Currently the WSDOT Collision Data Analysts use information entered by the officer on the collision report (address, officer narrative and officer diagram) plus other tools (WSDOT Locator Log, WSDOT SRview, and WSDOT Interchange Viewer) to determine the state route and milepost location of collisions that occur on state routes.

What Are Other States Doing?

X,y coordinates on the earth's surface are a more exacting and universal way of locating objects or locations than location referencing systems that tend to differ from business area to business area. With the advances in technology, x,y coordinates are becoming more of a way of doing business; however, there are many technical challenges that need to be overcome to insure that this data is collected, stored and maintained properly and can be displayed and reported on accurately.

Iowa has been very aggressive in resolving their location issues. Their first attempt at collecting location data for their electronic collision data and citation system was by using GPS receivers in the officers' cars to capture x,y coordinates for the collision location. They found that there were too many variables that were causing them to not always get accurate x,y coordinates:

- They could not always communicate with the satellites
- The officers didn't always have the time to get the coordinates at the collision site as they were trying to manage more urgent needs
- If the officer failed to get the coordinates at the collision site, they didn't have a way to obtain the collision location coordinates later
- If the GPS receiver could not transmit the coordinates into the electronic collision software, there was a greater incidence of transposition when the officer had to transfer the coordinates from the receiver to the collision software manually

Iowa knew that they had to find a better way to collect accurate collision location coordinates. In collaboration with their Center for Transportation Research and Education (CTRE), a branch of Iowa State University, they have developed an Incident Location Tool (ILT). Their ILT is software that is on the officer's computer and interfaces with their data collection software. The ILT provides the officer with a map of their jurisdictional area. The officer can identify the location on the map where the collision or citation occurred and the software interprets the corresponding geographical x,y coordinates and places them in the data record.

In addition CTRE developed a tool incorporating the same look and ease of use of the ILT into an Incident Mapping Tool (IMAT) for agencies to create display maps and charts using the data collection software database. This enabled the agencies to make immediate use of their data.

The merits of this solution are:

- GPS equipment is not required in the officers' cars
- Officers do not have to wait for a good satellite reading to get the collision location x,y coordinates
- The x,y coordinates are automatically populated into the collision database
- An x,y coordinate can be referenced to an exact place on planet earth, and with supporting software can translate to a GIS mapped location or the x,y's relative relationship to a location referencing system (e.g., state route mile post location, county road log and milepost or city address)
- An x,y coordinate is a universal location referencing method
- The incident locations are immediately available for mapping and display

It should be noted that Iowa still allows the officers to take a GPS reading (with GPS units that meet their standards) for citations; however, by policy they require agencies to use the ILT to locate crashes.

Iowa reports that New York, Georgia and Delaware are following the Iowa model.

Is the Iowa solution right for Washington?

The key to Iowa's solution is having a transportation layer in GIS. The WSDOT has several initiatives underway regarding location referencing and mapping of the state routes. Many cities and counties are developing map layers of their roadway systems and there is a regional project called WA-Trans that is an effort to build a statewide transportation layer in GIS.

To follow a model such as Iowa's, Washington would also need to develop a software interface into the Traffic Data Collection Software (TDCS). This interface would contain maps or shape files of the jurisdictional area of the officer. A third party software called MapObjects would need to be used to read and display the maps. There would be licensing issues that would need to be addressed regarding MapObjects. Iowa was successful in obtaining a statewide license at a "very reasonable cost."

If Washington follows this model, the transportation layers, software development and third-party software licensing for map display will need to be secured and implemented.